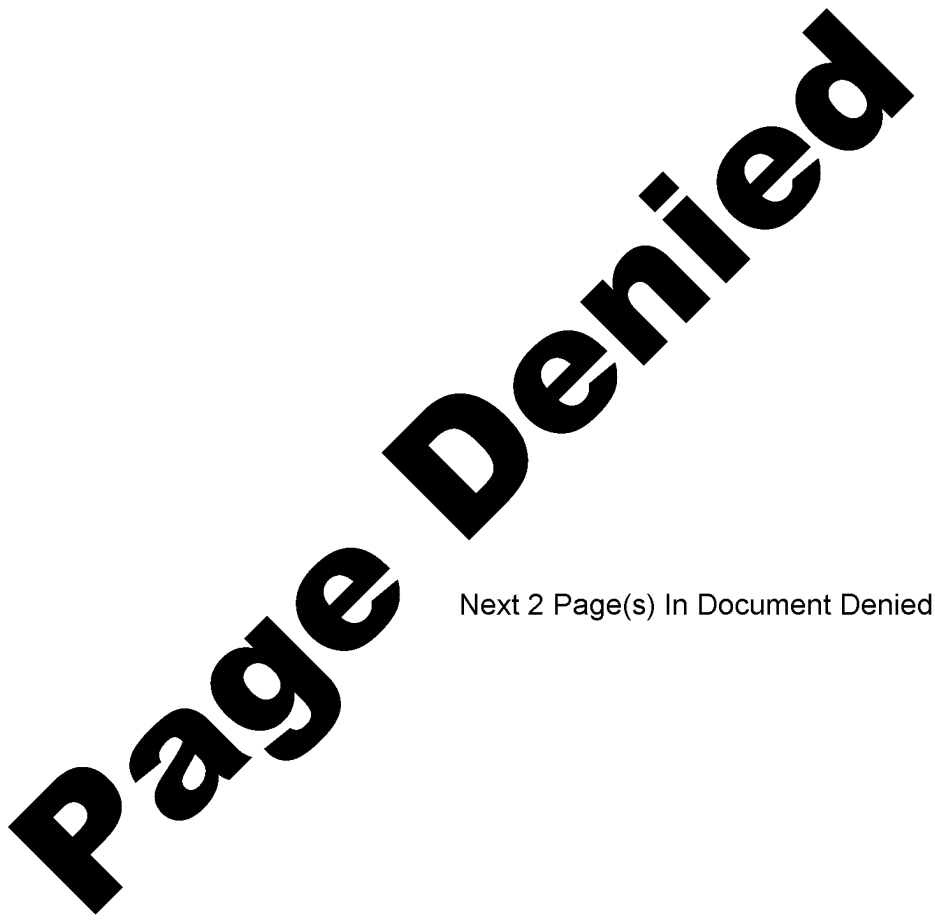

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SUBJECT

MILITARY THOUGHT (USSR): The Rapid Elimination of the Aftereffects of Enemy Nuclear and Chemical Strikes

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The Rapid Elimination of the Aftereffects of Enemy Nuclear and Chemical Strikes

by

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After the massive use of nuclear and chemical weapons, both sides will strive to exploit the results of the strikes more fully and to forestall each other with decisive offensive actions by groupings of ground forces.

It is perfectly obvious that the attainment of these goals will depend to a great extent on how quickly the two sides are able to assess the changes that have occurred in the situation, refine the tasks for the troops, and eliminate the aftereffects of the enemy strikes.

In the present article we should like to express certain ideas on possible ways of shortening the amount of time necessary to assess the aftereffects of enemy nuclear and chemical strikes and to adopt plans for their elimination.

It seems to us that in seeking these ways, primary attention should be given to forecasting the results of nuclear and chemical strikes.

First of all, it is necessary, obviously, to perfect the system of plotting nuclear bursts. A radical solution to the problem would be the creation in a front and in an army of an independent system of plotting--at the present time on the basis of air defense special purpose radiotechnical means, and in the future on the basis of seismic, radiotechnical, and other special instruments.

It is advisable to transmit data on enemy use of weapons of mass destruction on special communications channels. In the exercises, for example, it was found expedient to allocate to front analytical evaluation stations separate channels for communications with the radiotechnical posts of air defense, the analytical evaluation stations of armies, and the analytical evaluation groups of the divisions of the front reserve. In so doing, the time needed to collect data on nuclear and chemical strikes is reduced and information gathered on the radiation and chemical situation by analytical evaluation stations, analytical evaluation groups, and directorates and departments of front headquarters is improved, although admittedly a certain increase in communications means is required.

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In the interest of reducing the time required to process data, the network planning method for the work of analytical evaluation stations deserves attention. In our view, there must be an analytical evaluation station not only at the command post, but also at the rear area control post of the front.

It is advisable to forecast and assess the results of the initial nuclear strike first of all in the most important individual areas. Of great importance here is the early (even in peacetime) study of the theater of military operations (statistical information on the prevailing directions and speeds of winds, averaged data on the degree of vertical stability of the atmosphere on a yearly chart, etc.), analysis of the possible scope and methods of enemy use of weapons of mass destruction, and the preparation of various kinds of maps for forecasting probable areas of destruction, flooding, fires, and zones with radioactive contamination of the terrain.

For a quick approximate determination of the degree of combat effectiveness of large units and units after enemy nuclear and chemical strikes, previously prepared tables may be used. As one of the possible variants, we cite approximate initial data (Tables 1 and 2).

By knowing the number of nuclear and chemical strikes, the dimensions of the sectors of chemical strikes, and the number of personnel stationed in these areas at the moment of the attack, it is possible using these tables to determine quickly the degree of combat effectiveness of a large unit or unit. For example, a motorized rifle division in a concentration area is subjected to six nuclear strikes by the enemy, of which two have a yield of 100 kilotons, three have a yield of 300 kilotons, and one has a yield of 500 kilotons. Using Table 1 we find that the division may sustain losses to personnel of roughly up to 54 percent. For fuller determination of the combat effectiveness of a large unit, it is necessary also to take into account losses in combat equipment.

There is no question that data on the combat effectiveness of large units obtained by this method are especially tentative and require further refinement of information from officer intelligence and of reports from the troops.

Assessing the degree of combat effectiveness of an army in a short space of time is more complicated. A combined-arms army may be considered combat effective if it is in a position to exploit effectively the results of nuclear strikes of the front and of the Strategic Rocket Troops, and also to complete the destruction of the opposing enemy.

A speed-up of the process of adopting a plan for the organization and implementation of measures to eliminate the aftereffects of the use of nuclear, chemical, and biological weapons can be achieved if, simultaneously with the assessment of the situation and the adoption of a plan to restore the combat effectivenes of forces of a front and an army, tasks are determined and assigned to special units and subunits for the immediate elimination of the aftereffects, or at least the organization of their advance toward the centers and areas of destruction. On the average, the determination and allocation of tasks at army headquarters can require 20 to 30 minutes, and in front headquarters 40 to 50 minutes. The time it takes for the special units and subunits to arrive in the work area will depend on their location, methods, and speed of advance. In the exercises and war games, it took an army from one hour and 12 minutes to one hour and 30 minutes, and a front from one hour and 20 minutes to one hour and 40 minutes.

(See Table 1 on following page.)

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Approximate Incapacitation of Personnel in the Area of a Nuclear Burst

Objective	Type of Burst	Losses to personnel in percent from aftereffects of nuclear bursts, by yield in kilotons					
		30	50	100	300	500	1000
Motorized rifle division in a concentration area of 600 sq. km.	Air	3	4	7	13	17	24
	Surface	1	2	3	6	8	12
Motorized rifle division during deployment for an offensive from the march	Air	6	8	13	25	30	--
	Surface	2	4	6	12	16	--
Motorized battalion, missile (artillery) battalion on the march; length of column six kilometers	Air	55	65	80	100	--	--
	Surface	33	41	60	80	--	--
Tank division in a concentration area of 600 sq. km.	Air	2.5	3	6	12	16	23
	Surface	1	2	3	5	7	11
Tank division during deployment for an offensive from the march	Air	5	7	12	23	28	--
	Surface	2	3	5	11	14	--
Tank battalion on the march; length of column six kilometers	Air or Surface	17	21	25	50	60	72
Rocket and antiaircraft missile means in a deployment area of up to 2.5 sq. km.	Air	14	20	30	60	80	100
	Surface	8	10	15	30	40	70
Front control posts (50 sq. km. in area)*	Air	--	--	5	9	14	21
	Surface	2	6	9	18	26	40
Army control posts (20 sq. km. in area)*	Air	3	4	12	18	25	34
	Surface	10	14	20	34	44	60

* Control posts are equipped with dugouts.

Table 2

Approximate Incapacitation of Personnel in the Area of a Chemical Strike

Type of Toxic Substance	Means and Methods of Use	Possible losses of personnel based on type of protection, (in percent)*		
		Unprotected, in open trenches & slit trenches	In combat and transport vehicles	In covered slit trenches, dugouts, or in woods of average density
VX	Missiles, rocket artillery and aviation	50-60	40-50	30-40
	10-15 minute tube artillery strike	30-40	20-30	15-20
Sarin	Salvo. 30-second artillery strike	50-60	40-50	40-50
	Missiles and aviation	25-30	20-25	15-20
	10-15 minute tube artillery strike	10-15	10-15	10-15

* The data cited here apply to conditions where a surprise enemy attack is possible in terrain of average ruggedness under average meteorological conditions. In attacks with toxic substances where the element of surprise is not present, and personnel have protective means, losses amount to 8 to 12 percent.

Taking into account the fact that the allocation of tasks for special units on the scale of a front will require 40 to 50 minutes, and advancing them to the centers and areas of contamination will take up to one hour and 40 minutes, we may state that specialized assistance to large units that have been subjected to massive nuclear strikes will arrive not sooner than two hours and 20 minutes after the enemy nuclear and chemical strike. Such a period of time, especially after contamination with chemical weapons, cannot be of much help to the troops. In the centers of chemical contamination, first aid must immediately be rendered by the forces of the very troops subjected to contamination by toxic substances. Specialized subunits should be transported by helicopter into the areas in order to fulfil their tasks.

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In order to quickly adopt a plan for the elimination of the after-effects in the areas of destruction by nuclear weapons, maximum economy of time is important in reconnoitering the centers of destruction. Officer, and also chemical and engineer reconnaissance patrols, should be appointed for this purpose. The officer reconnaissance patrols ascertain the overall situation in the centers of destruction and determine the volume of rescue and reconstruction work to be done. In order to fulfil the tasks in a short space of time, it is best to carry out the reconnaissance in helicopters.

The amount of time required for reconnaissance in the centers of destruction will depend on the method, forces, and means that are used. It can be determined by previously prepared tables based on the types and yield of nuclear bursts. If the nature of the destruction, losses, and damage was established by engineer and chemical patrols, the measures for bringing aid to the victims cannot be taken any sooner than 20 to 30 minutes after the conclusion of ground reconnaissance of the centers of destruction. In order to speed up the adoption of a plan for carrying out these measures, data from air reconnaissance should be used. Measures requiring the greatest amount of labor are the removal of obstacles from roads leading to the centers of destruction, the clearing away of barriers and landslides in the centers of destruction, and the extinguishing or localizing of fires that hinder rescue work. Thus an engineer road construction and repair platoon or a siting platoon can complete this work in the center of an air nuclear burst with a yield of 30 (50) kilotons in 1.5 to 3 hours, of 100 kilotons in 2.5 to 3.5 hours, and of 300 kilotons in 3.5 hours.

In order to reduce the amount of time needed to clear and lay roads for the evacuation of the wounded and the casualties, more decisive steps must be taken to supply technical means to the troops. In particular, we should, as soon as it is possible, increase among large units and units the number of bulldozer attachments on combat and transport vehicles, create engineer devices that operate on the principle of taking advantage of the horsepower of engines on combat and transport vehicles, and also supply the troops with small-sized devices with self-contained engines for carrying out earthwork.

Rescue operations in the center of destruction must be carried out in the shortest possible time, since delay can lead to considerable additional losses. Rescue groups must include forces and means capable of simultaneously removing casualties from under barriers and wreckage, setting up a post for the assembling and sorting of casualties, and training personnel for evacuation to medical installations of operational formations. To

determine quickly the time needed to carry out these measures, previously compiled data should be used (Table 3).

To reduce the time needed to carry out rescue operations in the centers of destruction, it is essential to make wide use of helicopters equipped with appropriate interchangeable containers for the evacuation of personnel. A maneuver by helicopters on the scale of a front or an army will make it possible to bring aid to the victims in a significant number of centers.

There are also other realistic ways of solving this problem. Basic among them are: more effective use of non-organic detachments for eliminating the aftereffects of the use of weapons of mass destruction not only in units and large units, but also in specific zones or areas; broader utilization of civil defense units to fulfil this task in rear units and installations of a front and of armies; raising the capabilities of the units themselves and of installations to eliminate the aftereffects of the use of weapons of mass destruction.

The implementation of measures to eliminate the aftereffects of strikes by nuclear, chemical, and biological weapons is a complex matter. The forces themselves that have been subjected to a massive strike will not always be in a position to cope with this in the shortest possible time. The absence in rocket and technical rocket units of any means for doing so makes it impossible to carry out special work (especially, full special treatment).

(See Table 3 on following page.)

Table 3

Approximate time needed to carry out rescue operations and medical-evacuation measures in a center of destruction by nuclear weapons, by forces and means of an allocated group (separate medical detachment, medical battalion)*

Targets of Destruction	Type of Burst	Amount of time (in hours) needed for rescue and medical-evacuation operations in the center of a nuclear burst with a given yield (in kilotons)					
		30	50	100	300	500	1000
Motorized rifle division in the concentration area	Air	0.4	0.5	0.9	2	3	5
	Surface	0.2	0.3	0.4	1	1	2
Motorized rifle division during deployment for an offensive from the march	Air	0.8	1	2	4	6	-
	Surface	0.4	0.8	1	1.7	2	3
Tank division in a concentration area	Air	0.3	0.4	0.7	1.5	2.4	4.6
	Surface	0.2	0.3	0.3	0.6	0.8	1.3
Tank division deployment for an offensive from the march	Air	0.6	0.8	1.3	2.8	4.2	-
	Surface	0.3	0.6	0.7	1.2	1.5	2.3
Missile and antiaircraft missile means in a siting area	Air	0.1	0.1	0.2	0.3	0.3	-
	Surface	0.1	0.1	0.1	0.2	0.2	-
Front and army control posts	Air	0.2	0.3	0.5	0.5	0.6	-
	Surface	0.1	0.2	0.2	0.4	0.5	0.6

* We have chosen a case where one allocated group (separate medical detachment, medical battalion) can render first aid and evacuate 180-200 casualties in one hour.

At the same time, measures to eliminate the aftereffects of the use of weapons of mass destruction can be carried out effectively and in a short space of time if the forces are taught the proper methods and are equipped with the necessary means. For example, full special treatment by forces of a separate chemical defense battalion in a motorized rifle regiment takes 2 to 2.5 hours, and in a tank regiment 1.5 to 2 hours. These periods can be shortened if the troops are equipped with DK-4 chemical warfare decontamination sets and KSO-1 personal treatment sets. In addition, in divisions and rocket units that have suffered heavy casualties, army or front forces and means must be used. In this connection, armies and fronts, in our view, should be assigned an increased number of special treatment units equipped with new high-efficiency machines.

The question of increasing the number of special units in combined-arms and rocket large units also deserves attention. For example, in motorized rifle and tank divisions it is advisable to have a chemical defense battalion, in a rocket brigade a chemical defense company, in a mobile rocket-technical base an engineer chemical company. Reserves of special treatment means should be created at all troop levels, even in peacetime.

It will be very important to have stable radio contact two steps down the chain of command, so that the senior commanding officer can assume direct control of large units and units should their control posts be put out of action, and also that he be able to ascertain the true condition of the troops after enemy use of nuclear, chemical, or biological weapons.

In conclusion, I should like to call attention to the fact that the successful resolution of the problem under examination on the whole, will depend to a great extent on the morale of the troops, the timely prevention of panic among personnel in units and large units that have been hit. To achieve this we must inform all personnel in the shortest possible time of the nature of the situation that has developed and of the help being given to the wounded and the sick. We must also take measures to create a correct understanding of the condition of those forces and means remaining after an enemy nuclear and chemical attack, and thus instill confidence in the possibility of fulfilling combat tasks. To assist commanders and political workers of large units and units that have been subjected to nuclear strikes or the effects of chemical and biological weapons, a sufficient number of political workers from the army and front reserve should be allocated.

The elimination of the aftereffects of enemy nuclear and chemical strikes is an enormous task for all front and army forces, in terms of scope, complexity, and labor required. The search for new ways to speed up its fulfilment must be the concern of commanders and staffs of all levels.

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